UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

PUBLIC MEETING AND COMMENTS ON THE

PREFERRED CITYWIDE REMEDY

NEW DORP HIGH SCHOOL

STATEN ISLAND, NEW YORK

ADDRESSSING POLYCHLORINATED BIPHENYLS (PCBs)

PRESENT IN THE CITY'S SCHOOLS

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Reported by:
DANIELLE GRANT
Job no: 11928

T R A N S C R I P T of the proceedings in the above-entitled matter being taken by DANIELLE GRANT, a Notary Public of the State of New York, held at the NEW DORP HIGH SCHOOL, New Dorp Lance, Staten Island, New York 10306.

PUBLIC MEETING EPA PRESENTER:

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GARY HUNT, TRC CORP.
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(THE PROCEEDING OPENED AT 6:35 P.M.
AS FOLLOWS:)

MR. KLUESNER: You can provide us your comments by mail or e-mail. All right.

I would just like to acknowledge that we have Laura with comptroller Stringer's office, and also Dan with councilman Matthews office, so thank you for coming out. We have a representative of the UFT is here. I believe can say plural, we have parents plural, I know we have one, thank you for coming, and we may have more that just arrived.

So everybody, you know, my job is to sort of make you feel comfortable. If the noise from the fan is too much I'm going to adjust that. It sound a little better. It was echoey at first.

I want to make sure you can hear.

Dan, yes?

AUDIENCE SPEAKER: Kill the fans.

MR. KLUESNER: Yes, I'll adjust that

in a second, and that's one of my jobs is to make sure you can hear, to make sure that we will be here for as long as we need to take your comment and answer as many questions as possible. So that's our mission tonight.

To the extent we cannot answer the questions tonight, we will certainly get back to you and provide those answers in a responsiveness summary.

So we have a brief presentation by EPA and the City, and we'll go ahead get started and then I will ask you to hold your questions and comments until after the presentation, that will be much appreciated. If you can turn your cell phones on silent, that would also be appreciated.

All right. So thank you. With that I'll turn it over to Jim.

MR. HAKLAR: Thank you, David. Let's start with the presentation, and why are we here tonight? The main reason why we're here tonight is to take or

receive your comments on the City's plan to address the PCBs in the school system. And it's really, aside from making -- providing your comments tonight for the stenographer, you can also send comments by regular mail to me at this address, or you can e-mail your comments to this e-mail address right here. And these addresses are provided on the flyers I think that are in the back of the auditorium.

So let's start with a little bit of a background PCBs. PCBs are manmade chemicals, they're not naturally found. They were manufactured from the 1930s through the late '70s, and they were considered the magic chemical. They had a lot of good valuable properties for electrical properties and heat transfer properties. And they were widely used in industry and especially in the construction of buildings.

A lot of buildings that were built or renovated from the 1950s through the

1970s you could have PCBs in the caulk, in the floor groove, things like that.

On the not-so-good side, PCBs are hazardous and potentially cancer causing, and because of this, Congress and EPA banned the manufacture of PCBs in the late 1970s.

Now, how do we know that PCBs are in New York City schools? Several years ago there were several individuals who would walk up to schools and collect a sample of the building caulk. They would have that sample analyzed for PCBs, and when they did that they provided the results to EPA, and they also provided the results to New York Daily News. Now, when we saw the results, some of the caulk samples were very high. We knew that there was an issue here and that it was an issue that had to be addressed.

So we entered into discussions with New York City and the result of those discussions was a formal

agreement which we call a consent agreement. And that formal agreement addresses the PCBs.

Now, the agreement with New York City was signed by EPA and New York City about four-and-a-half years ago, and it required the City to perform a study, it's a study that we call the pilot study. And it looked at five older schools throughout the city, and these older schools were known to have PCBs in their building materials. And based on what was found during the pilot study, New York City prepared a report on its findings, and that report also has a proposed approach which is called a preferred citywide remedy. It's a proposed approach to deal with the PCBs.

And at this point I an going to hand the microphone over to Ed Gerdis of TRC. TRC is a consultant for New York City and Ed will discuss the details of the pilot study.

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MR. GERDIS: Thank you, Jim. My name is Ed Gerdis, I work for the New York City School Construction Authority as a consultant. I work for a company called TRC Environmental, and we're going to talk a little bit about the pilot study that we performed. We're going to follow this outline of this presentation, introduction, background, talk a little bit about the results, the preferred citywide remedy and then some of the long-term monitoring that we're going to be performing.

Jim mentioned about PCBs and their production. They were used widespread, and not only in New York City, throughout the United States. A billion pounds were used between the '20s and the '70s, 1.4 billion, so a lot of PCBs were generated and used in commerce, commercial products. Beginning in the '50s, it was used in caulks for its elastic properties. It was useful to be used in caulk around,

you know, that you apply around masonry joints and windows and doors.

It was banned in 1978, and in 2009, so relatively recently the EPA came up with guidance relative to this issue, so it's what we consider a relatively emerging issue in the environmental industry.

There was an agreement called a CAFO, consent agreement final order. And part of that agreement included an evaluation or what was called a pilot study in five schools. Five schools were selected to evaluate with the ultimate goal of coming up with a citywide approach. and this is part of that process. We've done that work within five schools, and we've talked a little bit about that, and now we're using that information to develop a preferred citywide remedy.

I want to note that it's the first and its only kind in the nation, so although a lot of school districts

within the nation face the same problem and the same issue, New York because of its size, I guess, was selected as sort of the leader in this issue.

The five different remedial alternatives that were studied in the five schools included encapsulation of the caulk where you put an encapsulant on the caulk. Removal and replacement of the PCB caulk. Patch and repair of the caulk. And then window removal, and these are typical applications that we're looking to use to address PCB caulk issue.

This started in 2010 and during the summer of 2010 when this was ongoing we identified PCB ballasts as also a potential problem. And it turns out, because of that significance of that issue, we added that to the piolet study, so we originally were looking at caulk alone, and then in 2011 we added evaluating removing and replacement of PCB ballasts, the light fixture

ballasts.

These are the schools, so there was one in each borough that was evaluated and the various remedial alternatives I discussed were evaluated in each of those school, so 178 patch and repair, 199M remove and replace, 183Q was window replacement, 309K was encapsulation. And what else? 3R light fixture removal.

Essentially, after we did this work, we ultimately removed all the light fixtures in each of these schools as well.

The study followed an approach where we did some remedial activity, we wanted to study the remedial activity, so if it was encapsulation or patch and repair, or removal, we took samples before we did that and then we took samples after we did that to see if there was any impact.

We took samples in the air, of the dust, so we took wipe samples and then

when outside the school as well we took soil samples. And we sampled pre and post remedial samples. We collected pre and post remediation samples. And they were collected in the same locations, you know pre and post.

And what we found is, in all the wipe samples the pre and the post were all below, with the exception of one sample which was an anomaly because we went back and retested it, we did not find that result, when we took all the pre and the post samples, they were al below the EPA guidance. EPA has guidance and regulatory limits for surface concentrations as well as guidance for air concentrations.

So what we found was when we did the pre and the post, all of them were below the guidance except that one which essentially we felt that it was a good indication that the routine housecleaning that is being conducted is effectively managing the issue if

there is in fact an issue.

We also collected air samples, pre and post. Over 1100 air samples were collected. And what we essentially found was when we did, we took the sample, we did the remedial activity, we saw the levels essentially generally come down, but then when we removed the light fixtures and the light ballasts we saw a more dramatic impact, so that was where this was leading, the information, the data was leading us to was we were focused initially on the caulk, but then when we saw the dramatic impact on the light fixtures we said we should really focus on these light fixtures.

And so some of the findings that we found that it is a complex issue, so there's a number of sources of PCBs, there's the issue of releasing and become secondary sources and re-releasing.

There was a document that the EPA

published in 2012, at the end of 2012, that highlights that issue. And then other issue is -- one of the key findings of this that we should really address the PCB light fixtures before we address anything else because it's got the high concentrations, it's on an electrical unit. They've out lived their usefulness, and not only help the environment, they would also, you know, we get energy efficiency impacts as well. So they should be addressed first.

PCB caulk needs to be managed on an ongoing basis, and we'll talk about that. And then ultimately what we found is more research is needed. This is a complex issue, it's an emerging issue, there's not a lot of information out there. A lot of things have been gained and learned as part of this program, but more study needs to be done.

One of the big findings of this

pilot study was, and one of the big results was the removal and replacements of all the PCB light fixures throughout the school district. So all of the light fixtures are going to be removed. There is a schedule for it, and they're all going to be removed by December 31, 2016.

So it's a pretty aggressive schedule. There's hundreds of buildings that have PCB light fixtures. And so I guess 238 at this point, it's a moving target, there's constantly work going on so every day there's more being done and completed, but currently there's 238 that have been completed and 173 that are in the process.

So ultimately we come up with the preferred citywide remedy, and that's sort of the end game, but again we still, I think, there is -- so where we are right now is the light fixture removal program is ongoing. There is a protocol that was developed to

inspect -- until that time that they're all removed there's a protocol that was developed to an ongoing basis to inspect and respond to any kind of ballast issues that's being implemented. There's best management practices that were developed and approved for managing the caulk in place so an inspection of the caulk and if there are any kind issues, how to address them, the protocols that should be followed to address those issues.

When there's a capital improvement project, like a window replacement job or a door replacement job or anything that might impact caulk, there is an investigation that's conducted to determine if that caulk that is impacted is PCB containing, is it PCB regulated material, and if it is, then proper precautions are implemented to remove it appropriately under containment conditions, so it's a controlled removal.

In addition, as part of a capital improvement project, if there are window jobs or anything that might be impacting the exterior or the soil when the job is complete, the soil around the exterior of the building is tested, and if it is impacted it is removed and addressed through an EPA protocol.

Long-term monitoring is something that's ongoing, and so an ongoing basis we're going to be doing air sampling twice a year at a minimum in these pilot schools to monitor the progress.

Bulk sampling is going to be conducted as part of the long-term monitoring plan and also wipe sampling. But as, if you read the document, there are additional studies that we are working currently with the EPA to develop to implement on an ongoing basis to further study this issue.

With that, I'm going to turn it back over the Jim.

MR. HAKLAR: Okay. Thank you, Ed.

Okay. So now the pilot study has been completed. What were the next steps? In accordance with our agreement with New York City, EPA had to conduct what's called a peer review. And a peer review -- you have to think of a peer review as if you were, let's say, writing a letter to somebody and you gave it to an independent party to check to make sure there were no mistakes or errors. So we had technical experts review New York City's work.

We also, in accordance with our agreement, are holding this public meeting and we're going to be having one final later on this week in Brooklyn.

So let's talk a little bit about the peer review. Peer review was independent. EPA had no direct contact with the peer reviewers. We used a consultant who managed the peer review, but we -- and any questions or

information was passed through the consultant to the peer reviewers. There were a total of three peer reviewers. Two of them were from private industry or the environmental field. One was associated with a major university in the northeast.

And EPA provided the -- we provided our consultant with a set of questions for the peer reviewers to answer. And before we provided our consultant with those answers, we provided them to New York City for their input.

And once the peer reviewers had completed their work, our consultant assembled the responses into what's called a peer review report. EPA reviewed that report, and we prepared our own document on our perspectives on the peer review. And both documents can be found at the web site that's provided at the bottom of the slide right over here. And that web site,

again, it should be on the flyers.

So what were the major findings of the peer review? Well, if we start and we look in general terms of the City's summary report the, peer reviewers found that the report was comprehensive and that appropriate methods were used during the actual field work or the investigation phase of the pilot study.

We had tasked the peer reviewers to take a look at what it is called the City's reoccupancy protocols in the event of a light ballast failure. Now, a light ballast is an electrical component that's inside a fluorescent light fixure. The older light ballasts, the ones that are 40, 50 years old, could have these ballast components that could have PCBs in them, and if those ballasts smoke or if they leak you could you possibly have PCBs released into the area where the ballasts are leaking.

The city has an established

protocol to respond to those situations and that protocol generally consists of evacuating the area, whether it be a classroom or hallway, whatever. Then the City provides proper notifications to EPA and to other parties. They also, they ventilate and they clean the area, and then they perform clearance testing.

Now, the clearance testing that the City performs is call wipe sampling, where you would take a gauze and wipe it along the surface of a desk or a table or the floor and to see if that gauze would pick up PCBs, and you would have that gauze analyzed at the laboratory. And we tasked the peer reviewers to look at that sampling, and some of the peer reviewers believe that wipe sampling alone for clearance is not adequate.

We also had the peer reviewers look or tasked them to suggest other options for addressing PCB caulk. You

heard Ed Gerdis talk about the alternatives or the methods that were evaluated during the pilot study. Some of the peer reviewers recommended physical barriers such as plastic tape or board or aluminum strips to prevent exposure to the PCBs, or even treating the caulk, chemically treating the caulk to reduce the amount of PCBs that's present in the caulk.

And one thing you have to realize, PCBs can move around. If you have caulk and it's over masonry like brick or concrete, the PCBs could move from the caulk into the concrete. PCBs also move from the caulk into the indoor air. And what EPA's office of research and development has found is that that is the primary way that people inside a building can get exposed to PCBs. It's not touching a little thin bead of caulk around a window, but it's in actually inhaling or breathing in PCBs that have gotten into the air.

We also tasked the peer reviewers to look at prioritizing schools. How would you go about prioritizing schools to address this situation? There are potentially hundreds of schools in the New York City school system that could have PCBs in the building materials. And I believe in the City's report, there was a recommendation to address it as, in the course of routine or normal construction.

Some of the peer reviewers believe that proactively addressing the PCBs would reduce the risks of exposure, and all three reviewers believed that prioritizing based on air sampling would be an effective means of dealing with the situation.

Let's talk a little bit about ventilation, how air moves in school buildings. All three peer reviewers believed that ventilation should be made the best it possibly could be, not just for reducing concentrations of

PCBs in the indoor air, but also for dealing with other situations, like conditions of let's say mold or similar situations.

The one thing you have to realize is that a lot of the schools were built to have -- to have the windows open or to allow the windows open to let fresh air in. And with the newer energy efficient windows, sometimes when they're replaced they can't open and that can impact the overall ventilation in the school.

Let's look at housekeeping in the schools, and we have a special term for the housekeeping called best management practices. And at the start of the presentation I mentioned that PCBs were used in caulk, building caulk. The reason why they were used in building caulk was to keep the caulk flexible. And if you were to take a look at caulk that was along the side of a building or around a window that was installed

40 years ago and it had PCBs in it, it may look like it's relatively new or that it was installed within the last year or the last month. And what we asked the peer reviewers to look at was do you focus on that intact caulk when you do a normal cleaning, housekeeping, do you focus the deteriorated caulk, because if you go look inside a building, sometimes you see caulk that's flaking or cracking, or do you look at both and the peer reviewers really weren't consistent in their recommendations. One recommended looking at intact caulk and another recommended looking at both, so, so, their responses were varied.

And then let's move outside the school, to the soil surrounding the school. We tasked the peer reviewers to look at, were proactively looking at the soil around the school, would that significantly reduce exposures. What we believe is that PCBs that are in the

soil around the building, around the school building probably got there from old construction practices, from little pieces of caulk or other building material PCBs getting into the soil and contaminating the soil. And the peer reviewers really didn't believe that proactively going out now and looking at the soil would significantly reduce the exposure to the PCBs. And the reason for that is, once again, the main way that someone can get exposed is by breathing in the PCBs from the air.

So what are your next steps? Well, we have a public comment period that's open until June 30. And in accordance with our agreement with New York City, based on your comments and the findings of the peer review, EPA could revise the City's preferred citywide remedy. That's an option.

As Ed Gerdis mentioned, preferred citywide remedy also recommended

some -- acknowledged some data gaps, and after discussing those, this issue with New York City, EPA recommended or suggested to New York City that whatever research is done it include two areas.

The first one is to test different methods for collecting samples of the indoor air and for characterizing or trying to see -- trying to determine quickly and easily if caulk has PCBs.

The second area for research was really to refine or pin down how -- what is the contribution to the indoor air of PCBs from building materials? We know that the light fixtures are a major source, but are they the only source or is there, or is does caulk contribute as much or nearly as much? We don't know yet, and that's an area for further research.

Now, I'm going to start wrapping up and just a couple of points to remember. There was a lot of work done

through the pilot study, a lot of good work, a lot of good scientifically valid work.

We do know now, we have a better understanding of where PCBs are in schools or where to look for them in schools. And as I mentioned just a moment ago, by removing the light fixtures there's a major source of PCBs that's being removed from the schools. It may not be the only source but it's a major source. And your comments really do matter to us.

And just to recap on this, it's like a split slide, the top of the slide has the City's preferred citywide remedy and on the bottom we have where you would send comments, and actually I've looked today and I started getting comments, so that's a good thing.

So at this point I'm going to briefly hand the microphone back to David.

MR. KLUESNER: Thank you, Jim.

Don't go anywhere.

Okay. How is everybody doing? Can you hear everything?

So as I mentioned at the outset, we're here to take your comments. How is everybody doing over there, okay?

Okay. So at this point I would like to open it up for any comments by elected officials or any of their representatives. So Councilman Landry, will you --

MR. LANTRY: I'm here on behalf of Councilman minority leader Ignizio. My name is Brendan Lantry.

As many of you know, minority leader Ignizio has been a leader in the movement to remove hazardous toxic PCB-ridden lights and ballasts from New York City schools. In fact, as a result of his activism in this areas as well as that of Christina Georgio (ph) and the folks in the NYLPI meeting with the Department of Education and the former administration, minority leader

Ignizio successfully lobbied the City to commit to removing and ballasts an d commit to significantly lowering its time frame for removal of the ballast. Minority leader Ignizio remains concerned about the PCB ingestion in our schools derived from caulking materials. Indeed we need accurate scientific procedures to be utilized in order to determine whether the concentrations and the caulking are a danger to those in the classroom.

The best way to conduct such a survey is a full diagnostic testing, a full pilot, monitoring real conditions that our children will be placed in, closed doors, open doors, open windows, closed windows, with air ventilation both on and on off. This is the only way to insure the health and safety of our children and teachers.

Minority leader Ignizio urges the EPA to not rely exclusively on the DOE report, which I understand it's not,

and to keep an open mind from the peer reviews as well as the parents and scientists that appear before you in your meetings in the five boroughs.

Of course we all, the EPA, DOE, NYLPI, those in the council, all seek a safe educational environment for our teachers and students. We all should strive to be sure that our kids are safe and insure that by any objective measure we have protected the health of children and staff in our buildings.

Thank you for your time.

MR. KLUESNER: Thank you.

We have representatives from Council Member Rose, Councilman Matteo's office, Comptroller Stringer's office.

Any statements or any comments at this point?

Well, it open it up for comments. If I can get a show of hand for how many folks have a comment or a question.

Okay. If you wouldn't mind, I apologize, you might have to walk up her.

AUDIENCE SPEAKER: That's okay, I'm a teacher, I have a loud speaking voice.

So I don't know much about PCBs. I'm a teacher, I work in a building for more than ten years. I have children in the public school system, I have a grandson who is about to enter the public school system.

When I hear the study took five schools out of approximately 1,700 schools, it really makes me wonder how comprehensive is the study? How do you rely on the results from five out of, you know, 1,700 schools? So that to me says that, you know, what will you find if you test more schools.

I really want to know, are they expanding this pilot study, had they already expanded it, or are they really basing what happens with our children and our teachers on the study of only

five schools?

MR. HAKLAR: The pilot schools were selected to be representative of typical schools across the city. At this point, the pilot study is, aside from the additional suggested research, the pilot study is for the most part done, and at the moment its testing is not being expanded.

Does the City want to comment on this?

AUDIENCE SPEAKER: Can I just add, just to follow-up to your comment. I worked in a school initially for the first maybe seven years that was built, if I'm not mistaken, I think 1925. I have a son who graduated from a school building that was brand new built in maybe 2008 or 2009. So there really it is no way -- and I mean, I'm sure that there are, you know, far in between from 1925 to very currently built schools, so I don't see how taking one school from every borough can give you a realistic

picture or say this is the norm or this is the average, because just in one individual my experiences in public schools are vastly different in one borough.

MR. HAKLAR: And Again, I guess for more thorough explanation, I'm going to have to defer to the School Construction Authority.

MR. HOLDEN: My name is Ross Holden, I'm with the School Construction Authority. So I think early on in the presentation showed that the history of PCBs and when they were used predominantly in buildings, not just in schools, not just in the City, but everywhere, and it was in 1950 until 1978.

So if the school was built during that time or any building was built during that time or had a massive large major renovation done during that time, that is a potential building that you would want to either include in the

pilot program or have schools like it included in the pilot program, which is exactly what we did. We took schools during that period of time that were built between 1950 and 1978. After 1978 they weren't making PCBs anymore?

AUDIENCE SPEAKER: Not even in the lights?

MR. HOLDEN: No. The lights are older -- PCBs were banned in 1978 so they haven't been manufactured since that period of time. If lights were installed during the period of time 1950 to 1978, those are the lighting fixures that are being removed now by the City of New York.

So what we did was we looked at schools that were built during that period of time, that 25 year period of time. We took some that were built in the early stages because materials used in the 1950s and '60s were different than 1970, so we looked at the vintage of the school first and then we also

looked at the ventilation systems.

Some of them that were built in the latter part of the PCB era have full HVAC systems and -- central air conditioning, so we looked at those. And then we looked at some that were built prior to the time that central air conditioning was put into the schools, and those schools ventilate in a different ways, through exhaust fans on the roof. So we wanted to see how those schools were.

So with our collaboration with EPA, we came up with criteria, and we tried to find a cross section of buildings that would be representative of those built during 1950 to 1978 that we could use as a, kind of a laboratory, if you will, for testing materials, removing lights and doing the other things to try to control PCBs in the classroom environment.

MR. KLUESNER: Thank you, Ross.

Any other comments or questions?

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MS. ORLANDO: I'm a parent. Some of you might remember me from years ago at P.S. 53. So, I guess all these years out, we've kind of figured out that the lights were a problem and we're taking them out of the schools in what was a ten year time period but was reduced it to a two year, or roughly, 2016.

Do you think that the lights is an easier fix than the caulk is going to prove to be, if we determine that the caulk is the issue or another source? Because I think I looked in P.S. 3, maybe it was April of 2012, and right after the lights were removed, some of the air was still coming up with high PCBs or higher or slighter higher than the EPA standards in one of the hallways. And they duplicated like opening the door and shutting the door and retesting the air, and what they found was that it was, again, caulk, indoor caulk at that time, that was emitting, and so they encapsulated

that; is that right?

So if we take all the lights out of the building and we still have the caulk and we are finding that it is emitting or it's, you know, fryable or it's damaged, like is that going to be something that we can really control and is that what the next step is? That's the first part of it, and I know we're studying it and we're figuring out how to handle it. And I think we've determined that ventilating the buildings is a great help. Opening windows and HVAC or cleaning it, or containing it, I mean, is that the push of all this? Are we going to make sure that we have proper ventilation in all the schools, that it's still going to have PCB caulk in it, whether it's internally or externally. I know it's still there. And in P.S. 3 are we still going to do the windows or is that a project that was done or not done?

Because I think it was supposed to have the windows, but then halfway through we determined that it was the lights that were the problem, so that school became the pilot for the ballast replacement only.

And how are we on windows with the rest of the city, are we still doing window jobs and how are we cleaning the air? Are they testing the schools when they're doing it?

MR. KLUESNER: Do you have answers, or do you have --

MS. ORLANDO: I'm done.

MR. HAKLAR: Patty, you're going to have to remind me if I miss or forget one of your questions.

I think your first questions was how difficult is it going to be to deal with caulk versus the light fixtures. Light fixtures is, it's a straightforward solution, the old light fixtures, they have, they could have PCBs, you remove them, that takes cares

of that.

Caulk is a little more of an issue. As I mentioned during my part of the presentation, caulk, we still have to determine -- we still have to get a handle what is the contribution of caulk, of the PCBs in the caulk to the indoor air.

Are there ways of preventing the PCBs from moving from the caulk into the indoor air? If you have a light fixture, it's very easy to remove. If you have a bead of caulk.

I can tell you about just briefly about a project that I had, a building that a 25,000 linear feet of caulk. That's a little more challenging and it wasn't a school, it was a commercial building, but it's still a little more challenging from a -- than removing the light fixures. I think that was your first question.

Could you remind me of your second question.

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MS. ORLANDO: The ventilation.

MR. HAKLAR: Ventilation, the question was about the whole issue of using ventilation to reduce the concentrations. Ventilation is a very good thing to do, but it's not the only thing. We are considering the ventilation to be one component of what's ultimately going to be a multi component solution, whether that includes the housekeeping, the best management practices, whether it includes something else, but it's one thing, it's a good thing but we realize with hundreds of schools, ventilation is a significant -- is a significant way to go.

Your third question was?

MS. ORLANDO: Are there a lot of windows jobs being done and testing the air, we know it's contributing to PCBs in that building in addition to lights, are lights being done?

MR. HAKLAR: I'm going to look at the School Construction Authority as I

respond to this.

The questions was: are there still window replacement jobs going on in the city and the answer is yes. I'm seeing the School Construction Authority nodding yes. And during the job is the air being tested?

MR. HOLDEN: To answer your question about window replacement projects, those are -- it's a major category of work throughout the city of New York, not just in buildings that may have PCBs, but because the average age of a New York City's public school is 65 years, windows need to be replaced, a lot have the old wooden ones.

So whenever the SCA does a window replacement project, we first retest the caulk to see whether or not it has PCBs. We do that for two reason. One is we want to handle it in the appropriate manner during in the removal of the windows. And two, the window and the caulk need to be

disposed of in the proper way, so if there is PCBs in the caulk, then that has to go to a different landfill than if there was not.

So yes, you can count on the School Construction Authority for structural reasons, but, of course, the good part of that is that whenever we do a window replacement project, the caulk, and that's where much of the caulk is found, is removed along with the windows so we will continue to do many windows replacement projects every single year.

MS. ORLANDO: Is it affecting the indoor air or we don't necessarily test the indoor air.

MR. HAKLAR: No, we don't test air, we will test the bulk product, the caulk, to see whether or not there is PCBs in it. And we go on from there. Sometimes we've done wipe samples under certain circumstances. We are, as part of the pilot program looking at different air

testing methodologies, that's something that we're working with the EPA on now, but it's part of the continuing research that Jim Haklar and Ed Gerdis were mentioning earlier.

MR. KLUESNER: Thank you.

Next comment or question?

Would you like to come up here? I'm sorry to make folks come up here, I apologize for that.

AUDIENCE SPEAKER: Just a quick question, I just didn't know, the pilot program was paid for by the City?

MR. GERDIS: Yes.

AUDIENCE SPEAKER: How much did it cost? Do we have an estimated cost?

MR. HOLDEN: I don't know exactly but we're talking about millions of dollars.

AUDIENCE SPEAKER: Thank you.

MR. KLUESNER: The next comment of question?

MS. YOUNG: Hi, my name is Barbara Young, my daughter is a student here, and

I wanted to know what these light fixtures are going to be replaced with. I don't know if I missed that because I was late.

The new energy efficient light bulbs are not safe for everyone, especially people with Lupus. There is health concerns with those.

And the second part of my question is if you're doing anything to test for other toxins in the air such as mold. It sounds like the ventilation will be good for all toxins, but is this only focused on the lights and the caulking or all toxins?

MR. KLUESNER: I'm going to answer your second question first. The pilot study focused on PCBs because our agreement was, that we reached with the City was under what's called the Toxic Substances Control Act, under which PCBs are present.

So what we're talking about tonight, the work pertains to

specifically to the PCBs.

With regard to the light replacements, and again I'm looking to the School Construction Authority, they're -- the older lights are replaced with the energy efficient lights. We have -- I can't respond to your comment on the health affects from energy efficient lighting on people with immune system compromises such as Lupus.

But Mark, do you want to say something? This is Mark Maddaloni, EPA's risk assessment.

MR. MADDALONI: Hi, I'm Mark Maddaloni, toxicologist.

I'm not familiar with the issue that you're raising. If you will send me some literature on it, I would be glad to study it and get back to you, but I would need more information than just the association of immunologic Lupus or other immunological disorders with lighting fixtures. I need to know

exactly what was in these lighting fixtures.

I know there's mercury, which is certainly an issue.

And so, just to expand and reiterate what Jim said, ventilation will have a lot of benefits. Yes, it's not only PCBs. Every indoor environment has a whole host of issues ranging, depending on the age of the building from asbestos, lead, other volatile organic compounds, mold, other infectious agents. There's literally a laundry list of environmental contaminants.

And one other thing I could gladly share with you, EPA has what's called a school's environmental health program. We have a great pamphlet, if you will, called Sensible Schools. And it goes through in great detail all of the environmental health issues that could be encountered in the schools and how to deal with them. So I'll be glad to

follow-up after the meeting and get you some really good literature on all the other things in addition to PCBs that you should be thinking about if you have a child in a public school or a parochial school or any school.

MR. KLUESNER: And also just to say one point, final thing. If there's a question tonight that we cannot answer, just to answer, you know, immediately, we will look into it and we will respond in our response in the summary.

MR. HAKLAR: Thank you, Mark, for the offer. I'll have in the back, if you want information mailed to you, put your name and address and we'll get it to you that way.

Thanks. Next comment or question?

AUDIENCE SPEAKER: I have another question. I think someone said that there were 1100 air sample collected; is that correct? Were those 1100 samples only taken in the five schools in the pilot study or were they from schools all

across the city?

MR. HOLDEN: Only five schools.

AUDIENCE SPEAKER: Okay. And can anyone speak to how the samples, like the specifics on how the samples were collected, because, I mean, I just know from, you know, my own experience, if I come into the building, you know, at 7:45 in the morning, the building has been closed, the air conditioning has not been on overnight, sampling at that time might give you a complete different number than if you sample at 12 o'clock in the afternoon or 3 o'clock after the day is done and the air conditioning has been on or windows have been open.

So can anyone speak to how the air sampling was done?

MR. KLUESNER: Ed, do you want to come up and just give a brief explanation?

MR. GERDIS: Yes. So we try to do the air sampling representative of normal building conditions, so, in the winter,

for instance, and depending upon how the school operates. Some schools have HVAC systems, so those schools, they don't open up the windows. The HVAC cools it when it's warm and heats it when it's cold. So in that case, we just take the samples under normal conditions.

We have tried to -- you know, we can't sample when the kids and the teachers are in the actual room, there's a sampling pump, there's a tripod and a stand and it's actually a glass tube. It is hung from the tripod at breathing zone height to try to represent the exposure that someone might, you know, the breathing zone of the child or of a person.

So that's what -- we set the samples up, we let them run for approximately six-and-a-half, seven hours, in that time frame. They're calibrated before and after we do our sampling. We get the flow rate of air that's actually drawn across the media

and then calculate the volume of air that's been drawn and that goes with the sample. The chain of custody to the laboratory. The laboratory then analyzes the sample and provide the information and we've been sending it to an independent laboratory to get the data back and then we get, you known we can convert it to the concentration that was in the air during that time period.

So, the actual conditions during sample can vary. So if it's in the warmer months and it doesn't have a, the building doesn't have an HVAC system, a lot of times the way the buildings operate is you have exhaust fans on the roof that be ducted to the core of the building, then they go to the classrooms, with the concept of you open up the windows, the air comes in and gets exhausted out so there's a ventilation system, that's how they were designed.

So obviously, if it's freezing cold outside, people don't have the windows open so we typically close the windows in the winter, and then in the spring and the fall when it's nice out, people like to have fresh air. It's always good for a number of reasons, not only this, to have fresh air. The windows are opened, cracked to allow fresh air in so that ventilation can operate as designed.

AUDIENCE SPEAKER: Thank you.

MS. YOUNG: So I couldn't really hear the response in total to my question about the energy efficient light bulbs, but I think he said he was a toxicologist and he was unaware of any health effects.

Those new light bulbs, if they break, they contain mercury. You're supposed to handle them with gloves, and if they break your supposed to have a hazmat team.

People that own them in houses don't know or do that so I don't allow

them in my own home, but how will I know that if a lightbulb breaks in school, that a hazmat team is going to come clean it up, and I think that could be just as or more dangerous than what these light bulbs you're replacing are. Just because they're cheap doesn't mean they're safe.

MR. MADDALONI: No, I agree, I in fact mentioned I thought you were probably referring to mercury.

The newer generation of fluorescent bulbs have a lot less mercury. And I know EPA has guidance on how to manage a broken bulb. It doesn't require a hazmat team, it requires sensible steps to confine the area of the breakage and try to not spread the small, the small amount of mercury that is there.

And, again, I'll give you my card. I could pass along the guidance that EPA has on the management of broken fluorescent bulbs, but we would like no

exposure, but we simply couldn't mobilize hazmat teams every time someone broke a fluorescent bulb. It's not possible.

MR. KLUESNER: Thank you, Mark.

Yes.

Roseann, I'm going to have ask you to stand right here and try not to move.

MS. APPLETON: Roseann Appleton, UFT. Just if I could speak to you about what is the protocol? Are protocols listed in each school for removal of the mercury-laden bulbs, the fluorescent bulbs? I mean, does the maintenance, does everybody know how to do this?

MR. HOLDEN: You Have to speak to the City about their custodial staff. I can't really respond to that because I'm the School Construction Authority and we'll install the new light fixture, taking out the old ones, but we don't do the maintenance in the school, we don't remove light bulbs or tubes that are --

that need to be replaced.

So we can take your concern back to the Division of School Facilities of the Department of Education and see if we can get a response for you on how what training there is for handling that type of fixture.

MS. APPLETON: Thank you. The only reason why I ask is because as these things come along, you know, we have to be trained, all of us, to know what's going on.

I'm health and safety in Staten Island and I would like to go to my colleagues and say yes, I know how. So if they know how I would like to know.

MR. HOLDEN: I agree. I should send you our Sensible Steps brochure for dealing with environmental health hazards in school. As I said there is a laundry list and you added one more, mercury, yes. When florescent bulbs break, mercury is released and it needs to be dealt with.

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MR. KLUESNER: Again, I apologize for the very awkward audio set up here. I appreciate your patience in that.

More comments or questions? I think the lady had had her hand up.

AUDIENCE SPEAKER: My name is Eileen Sulfuri (ph). On Friday I received a letter from my children's school that says that the lights were leaking. I looked at the results from the P.S. 3 pilot and I see that if lights and ballasts that were removed were described as contaminated and impacted, but I don't know what that means so, Mike, if someone could explain it.

And also so the Petridies School, the lights will be replaced, they will be given a higher priority, I wonder how long that will be, what we can expect and should I tell my children to look up and don't sit under the light in the interim?

MR. KLUESNER: So, I guess one of your questions was about what to expect

when the light fixture project occurs.

AUDIENCE SPEAKER: I would like to know when.

MR. GERDIS: All right, so, yeah, as part of the -- and that was designed for disposal, so as was mentioned earlier, or may have been mentioned earlier, one of the issues is when you remove these fixture you have to properly dispose of them and we don't dispose of PCBs in a landfill that's not appropriately designed to receive those.

So the idea is that when a ballast is in a fixture, over time it can leak. And when it does leak, it leaks into the fixture primarily. And then so when we open up that fixture and we see it has leaked, that fixure then gets disposed appropriately as well as the ballast. So if the fixture it's not impacted, and you can recycle the aluminum.

Going forward, there's a protocol for doing light fixture removal and

that involves evaluation of the light fixture, the segregation under controlled conditions by trained people who send the material to certified facilities for disposal. So it's not done by just regular electricians, it's not done by maintenance people that, you know, it's a wholesale program that's designed for and the School Construction Authority has protocols on how that operation gets implemented. And it's a detailed thing with oversight.

Is there another point to your question?

Oh yeah, I'm sorry, the other question you had said about should your kids be looking up, right, so as part of the ongoing we talked about that there is a protocol for removal of all of the fixtures in all of the schools by 2016.

In the interim there's a protocol for inspection and maintenance of those

ballasts that are in place on the list to be removed. And that includes having the custodians go around and check them and evaluate them, so that's what they're doing. And if there is some kind of an instance, because a lot of times they'll start to smoke, lights will flicker, the custodians then, there's a protocol on how to address that.

The room is evacuated. The fixtures removed. The room is ventilated. There are all these steps that go into it before the room as been reoccupied, so I don't think your child has to look up because the custodians are doing that.

AUDIENCE SPEAKER: Are those protocols reviewed in the peer review?

MR. GERDIS: Are those protocols reviewed in the peer review?

AUDIENCE SPEAKER: Right.

MR. HAKLAR: The protocols for a light fixture --

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AUDIENCE SPEAKER: The inspection --

MR. HAKLAR: We did task the peer reviewers with a question of inspection of light fixtures, and the peer reviewers, I'm thinking just off the top of my head, it was something, is visual inspection enough. The peer reviewers had different responses. One may have said pull down the light fixtures, another may have said, no, that's fine, that's fine.

What we have to think in the back of our heads is that it's the middle of 2014, so by the end, in two-and-a-half years all of these are going to be gone. So we have the peer reviewers' responses, we've looked at it and we've didn't see a need to address the issue further.

MR. KLUESNER: Dan.

MR. KRAFT: My name is Dan Kraft and I'm a retired EPA employee for about 30 years or so. I managed the Regional EPA PCB enforcement program, I retired in

2010, and I was involved with the initial monitoring of the pilot study.

A quick comment on the inspection of the visual inspection of the lights for PCBs, as was mentioned, it's an element in the proposed preferred citywide remedy, it requires periodic visual inspection of all T12 light fixtures, and appears to be a reasonable remedial action to undertake.

It's required by the April 11, 2011, New York Department of Education T12 ballast inspection protocol in all city public schools.

However, the protocol instructs the custodians and building managers that, quote, this inspection is an external inspection only, underlined. And you are not to open -- not to open is underlined, any ballast covers or light diffusers to perform your inspections.

This type of a visual inspection

protocol would not have discovered the pervasive PCB leakage in the light fixtures at P.S. 309 and P.S. 199M. If you don't look, you can't see and you won't find.

To identify leaking ballasts or prior leakage in a light fixture, you must look inside the ballast cover and actually observe the exposed ballast. So I call this the City PCB light fixture visual don't look, don't find PCB leak detection program. And I have a question to New York City representatives, but probably they won't be able to answer it because they're from the School Construction Authority.

And that is: Why does the protocol forbid the custodians and building managers from opening the fixture where they can readily see if there's any leakage in the fixtures? Are you able to answer that or do we need -- okay, Department of Education

person.

I want to take a step back and quickly provide some comments on this summary report and the New York City pilot study. As a general comment, the May 24, 2013 summary report for the New York City PCB caulk pilot study, in my opinion, is an my artful presentation that often generalizes or oversimplifies negative findings. It state findings or conclusion not supported by their data, references EPA analysis of city data as if to render some legitimacy to their statements fails to provide meaningful data summaries. They summarize the numbers of samples taken, but not the actual data. And referring the reader instead to data compiled in other reports.

The summary document does include many accurate statements and supportable conclusions, but in general it's a document that I believe most parents, school teachers and staff and

the general public will find impossible to critically evaluate.

There are two serious flaws in the pilot study design and implementation. The first one is dilution of PCB air samples with outside air. On finding significant, high, unacceptable PCB air levels in early sampling at all three initial pilot schools, that was P.S. 309K, 199M and 178X, the air sampling conditions were changed to allow large volumes of outside air shown not to contain detectable levels of PCBs into the spaces being tested during the period over which the samples were actually being collected.

This dilution by outside air resulted in measuring low PCB air levels meeting EPA guidelines. This poisoning of the air data by dilution with outside air makes it useless for evaluating the impact of PCB caulk remediation or removal of other PCB sources such as leaking or leaked PCBs

in light fixures on indoor air quality. A golden opportunity was missed.

Pilot study implementation changed from one with some possibility of scientific objectiveness to one designed to present the best possible conditions to insure that low PCB air levels meeting EPA guidelines would be found. The impact of this revised strategy, that is air sampling with windows open or with air conditioning units operating is clearly seen in the pre-remedial PCB air levels found in 2011 at P.S. 183Q, which was a window and PCB caulk removal project, and at P.S. 3R, which was to have all of their florescent light fixtures replaced.

All classrooms tested at P.S. 183Q, prior to any remediation, found air levels below EPA guidelines. At P.S. 3R, not only did all classroom air levels meet EPA guidelines prior to any remediation, the levels were essentially nondetect for PCBs, the

same level found in outside air. That pre-remedial sampling was conducted with windows open and/or air conditioning -- or air conditioning units operating.

Post remediation sampling in the classrooms at P.S. 3R were nondetect for PCBs. Supported by these sampling results, one might argue that it is unnecessary to address any PCB caulk or PCB disposal contamination in schools. PCB air levels were shown to be protective by EPA guidelines.

These results suggest that an additional pilot study result and finding be included in the summary report. Specifically that the addition of sufficient outside air to the indoor spaces being tested for their PCB air levels during the actual air sample collection periods can insure that the measured PCB air levels will be low and fully conform to EPA guidelines.

The second major flaw is the

failure to test the existing window caulking at both P.S. 309K and P.S. 199M. Both schools had complete window replacements with removal of high level PCB caulk around 2008. The caulk in both schools contained high levels of PCBs.

My recollection, I could be wrong on this, in excess of 200,000 parts per million. Since the pilot, PCB caulk removal studies showed that this remedial measure was ineffective in eliminating the PCB contamination of the original caulk, that's because PCBs that migrated into the surrounding substrate has a tendency to migrate back into the new PCBs. It could be a significant source of PCBs to inside air in the schools. This source of PCBs was not considered by SCA when it performed its relative source strength and modeling analyzes, so the window caulking in these two schools should be immediately tested for PCB content.

Did the pilot study produce any positive results? Yes, definitely.

As Jim Haklar mentioned, the extensive investigation of possible PCB sources in the air and air ventilation studies performed by the City were important, very important contributions that advanced the understanding of these areas and how they might impact PCB air levels.

Most importantly in my view, however, was the discovery of pervasive leakage of PCBs in the light fixtures, which focused attention on this additional separate and likely very significant source of PCBs in the schools. Thanks to the efforts of the New York lawyers for the public interest, there is now a court ordered deadline, December of 2016 for the compete replacement of PCB containing light fixtures in the city schools.

Another positive result I believe is that in the pre-remedial and other

PCB air testing done at the three initial pilot schools without the windows open afforded a glimpse of the unacceptable high PCB levels in the air. They found up to almost 50,000 nanograms per cubic meter, when the guidance is between 100 and 300 nanograms, to which the occupants might have been exposed over many years in the past and may continue to be exposed until leaked PCBs present in the light fixtures and PCBs in PCBs and other materials are removed or sufficient ventilation by outside air is continually provided.

On leaking PCB ballasts or leaked PCBs in the florescent fixtures, soon after the pilot study began in July 2010, PCB classroom air measurements that were significantly above the EPA guideline in every classroom tested at P.S. 309 and P.S. 199M led to the inspection and the completely unexpected discovery of substantial

pervasive leakage for PCB containing ballasts and/or evidence of historical leaking in the fluorescent light fixure.

And to put it in perspective, recognize that the testing in these spaces in these pilot schools was only a sample. It only really looked at about 15 percent of the classrooms and other spaces in the school.

At PS -- the percentage of leaking PCB ballasts or non-leaking ballasts with evidence of historical leakage found that in P.S. 309, 62 percent of the ballasts were either PCB leaking ballasts or the fixure was impacted by other leaks.

In P.S. 199M, 68.6 percent were found to be PCB leaking ballasts or other impacted -- impacted by historic leaks. And at P.S. 178X, 43.2 percent was found, but these were only Pre-K, kindergarten and special ed classrooms, so it wasn't the entire school.

These light fixtures were removed and replaced as supplemental remedial measures. In the summer of 2011, the light fixtures were removed as a primary remedial measure in P.S. 3R. At P.S. 3R, 90 percent of the light fixtures were described as contaminated and 94.8 of the ballasts were described as impacted.

Now, I think it's very important that EPA and the public get the same kind of information that was collected at the three initial pilot schools so you can understand the significance and how contaminated the situation might be in all the schools.

It was already asked and I also ask that contaminated and impacted be defined in the P.S. 3R context similar to the way it was at P.S. 309 and 199.

Did the City count PCB ballasts, leaking PCB ballasts and non-leaking ballasts with evidence of historical leakage in P.S. 3R as was done in the

first three pilot schools? If yes, please provide the tally so it can be compared to the findings in the first three schools. If not, why were these counts not taken?

After the window PCBs replacement remedial measure was completed at P.S. 183Q, all the T12 light fixture were also replaced. What was the leaking PCB ballast et cetera tally for this school? Was it taken? Please provided the information if it was.

And as reported in the EPA New York City PCB program web site, and it was updated here, as of March the web site reported that complete PCB light fixtures replacement had been completed in 217 school buildings, I think it was 238 at this point, and there were 541 remaining school buildings in which the PCB light fixture replacement is not yet complete.

Were the leaking PCB ballasts et cetera tallies taken and recorded for

those of the 217 schools not elsewhere already provided, please provide the detailed PCB ballast tallies for each of the schools. If the school list were not complied, why not? Were any of the 217 completed buildings that did not have evidence -- were there any of the 217 completed buildings that did not evidence substantial PCB ballast leakage or historical or leaking PCB ballasts, the historical leakage indicates that the ballast may have failed in the past and been replaced by the custodian and there may be a new ballast, there might be one that contained PCBs or there might be one that did not have any PCBs in the capacitor in the ballast that was replaced. But the leak is evidence that a prior PCB ballast may have leaked.

EPA enforcement of PCB disposal and use violations regarding city school B12 Florescent light fixtures.

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In August of 2010, the PCB PCBs pilot program unexpectedly found significant pervasive leaking or leaked PCBs in the light fixtures at the three initial pilot schools. Intact, non-leaking PCB florescent light ballasts, more precisely the small PCB capacitor in those ballast, were authorized by regulation in 1979 for continued use.

However, if such a ballast leaks PCBs, its use is no longer authorized and is therefore prohibited by the Toxic Substances Control Act, and any leaked PCBs is a violation of PCB disposal requirements.

In January and February of 2011, EPA inspected nine additional New York City schools and collected 145 PCB samples of leaking or leaked material in the florescent light fixure in those schools, almost 78 percent of the samples collected had regulated levels of PCBs. Leaking or leaked PCBs were

found at every school where PCB samples were collected.

The inspection results confirmed the findings at the initial three pilot schools and suggested possible pervasive long-term, possibly since 1979, PCB noncompliance throughout New York City public schools with the potential for significant exposure of students and staff. However, no EPA enforcement action was taken to require an expedited removal of this potential PCB exposure and correction of these violations.

So my question to EPA is why did EPA not take an enforcement action addressing the PCB violations in city school fixures?

I want to make one comment to a comment made in the Manhattan public meeting. One of the gentlemen there kind of suggested that the consultant might not be accurately sampling the data, that they might cook the books.

In my experience, I found nothing of that sort. I have no question on the quality of the data that the contractor collected and the analysis that was performed. My problem is with the sampling protocol, the fact that the windows were opened and outside air was introduced.

And there was another question about air testing after window replacement. And I know Miss Donnegan was involved at a school in 2008 or 2009 where there was an active windows replacement ongoing. The parents at P.S. 199 were also involved with an active window replacement and they were complaining that the children would come to school and there would be dust all over the place and they were concerned that the students were being exposed to PCBs.

Well, at the -- at P.S. 183Q, where they did a window replacement job, the pre-remediation testing, all

the samples met requirements. But after the remediation the air samples, all of them did not meet the requirements and so they had to do a supplemental cleaning.

So the very rigorous dust control procedures that were used may be need to be looked at to see if they're sufficient, and that we might also suggest that after -- well, first of all, that these replacements only take place when students are not present. And that after you complete the renovation, that you do air sampling to confirm that you have gotten -- cleaned up the area. And, of course, I would recommend that you don't have the windows open when you do the sampling.

I'm done, thank you.

MR. KLUESNER: The longest stretch without any feedback and we thank you for that.

Any other comments or questions?

Yes, ma'am.

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MS. ORLANDO: Again, this has been many years for me so I'm very grateful with the work that's been done with the EPA and the City and New York lawyers, and I know it's been a lot of money, but it's really all of our money, it's taxpayers' money, it's our kids, it's your kids, it's our families that are teaching there, you know, so I think if we are pulling together and we can find solutions, this is good work.

This is far for me, but, you know, scientific studies, here's what I know. My kid gets a science project, okay. We're trying to prove something, hypothesis. I have controls and I have variables. If I change the variables I've changed the results. So I think I'm hearing that we're feeding the rooms with clean air and we're getting a clean read or a better read, and that's great because it helps me figure out how I want to solve the problem. But I have to think about my kid in a

third grade classroom post window job every night in the middle of winter, with no ventilation and the heat blasting and not windows open, and dust remnants and particles being left and falling in the room from the night before, and I need to know, is there any or will there ever be a reading in a room environment like that, with no ventilation, no air, the heat on. Are we ever going to ever see what could be a possible air reading for kids in a classroom, because I can't say that any classroom in the city or every classroom in the city will always have this perfect ventilation system.

We don't even have it here, we have a big fan blowing in here to make some air happen. So, I mean, I think we have come forward and you know I'm thankful of you for the work that's been done, but, I mean, do we really know and do we really have any idea if there's greater contamination in the

classroom in a different setting or different time or different day? Thank you.

MR. KLUESNER: And we'll see if anyone has an answer now or if we need to get back in the responsiveness summary, we can do it there.

Thank you, we will provide a response at a later date.

Any other questions or comments before we wrap this up tonight?

I want to thank you all for coming out. Thank you for your patience and understanding with the audio system. Thank you.

(Concluded at 8:15 p.m.)

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CERTIFICATE

STATE OF NEW YORK)

)ss:

COUNTY OF RICHMOND)

I, DANIELLE GRANT, a Certified Shorthand Reporter, and Notary Public within and for the State of New York, do hereby certify: the above statement hereinbefore set forth, is a true record of the proceedings.

I further certify that I am not related to any of the parties to this action by blood or marriage and that I am in no way interested in the outcome of this matter.

In witness whereof, I have hereunto set my hand this 23rd day of June, 2014.

_____

DANIELLE GRANT

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